AMENDMENTS TO THE CLAIMS

A detailed listing of all claims that are, or were, in the present application, irrespective of whether the claim(s) remains under examination in the application are presented below. The claims are presented in ascending order and each includes one status identifier. Those claims not cancelled or withdrawn but amended by the current amendment utilize the following notations for amendment: 1. deleted matter is shown by strikethrough for six or more characters and double brackets for five or less characters; and 2. added matter is shown by underlining.

1. (Original) A method of operating a snowmobile engine having an air charging assembly, an engine air intake assembly, the method comprising the steps of:

compressing intake air in the air charging assembly;

providing a snow/ice retention area adjacent to a heat exchanger;

causing snow/ice to be propelled into the snow/ice retention area;

passing ram air through the heat exchanger and the snow/ice;

passing the compressed intake air through the heat exchanger to thereby transfer heat to the snow/ice; and

directing the compressed intake air into the air intake assembly.

2. (Original) The method of claim 1 further including the steps of: melting the snow/ice into liquid water; and blocking a portion of the heat exchanger to prevent flow of the liquid water out of the heat exchanger, thereby causing the liquid water to vaporize.

3. (Original) A method of operating a snowmobile engine having an air charging assembly and an air intake assembly, the method comprising the steps of:

compressing intake air in the air charging assembly;

locating snow/ice on a first heat exchanger by providing a snow/ice retention area adjacent to the heat exchanger, and causing snow/ice to be propelled into the snow/ice retention area;

passing an intercooler liquid through the first heat exchanger to thereby transfer heat to the snow/ice;

passing the intercooler liquid through a second heat exchanger;

passing the compressed intake air through the second heat exchanger to thereby transfer heat to the intercooler liquid;

directing the compressed intake air into the air intake assembly;

monitoring operating conditions of the engine; and

injecting the intercooler liquid into the air intake assembly under a predetermined set of the operating conditions.

4. (Original) The method of claim 3 further including the step of passing ram air through the heat exchanger and the snow/ice.

5. (Original) The method of claim 3 wherein the step of monitoring the operating conditions of the engine includes the steps of: monitoring the amount of intercooler liquid,

measuring the temperature of the compressed intake air in the air intake assembly, and detecting if an engine knock is occurring in the engine.

6. (Original) A snowmobile comprising:

a chassis that includes a track tunnel portion having a front end, with the front end of the tunnel portion including an intercooler opening, and a wall located adjacent to the front end of the track tunnel and the intercooler opening defining a snow/ice retention area;

a track located within the tunnel portion;

an engine mounted to the chassis, and including an air intake assembly and an exhaust assembly;

an air charging system;

an intercooler system including a heat exchanger being disposed adjacent to the intercooler opening and the wall, with the heat exchanger including a charge air inlet and a charge air outlet, and with the charge air inlet being in fluid communication with the air charging system and the charge air outlet being in fluid communication with the air intake assembly; and

a screen covering the intercooler opening.

7. (Original) The snowmobile of claim 6 wherein the air charging system includes a turbocharger, with the turbocharger having a turbine in fluid communication with the exhaust assembly and a compressor adapted to be in fluid communication with intake air.

8. (Original) The snowmobile of claim 6 wherein the heat exchanger has a lower portion, and wherein the heat exchanger further includes a flap sealingly mounted to the lower portion.

9. (Original) The snowmobile of claim 6 further including a ram air duct having a first end adapted to be open to air around the snowmobile and a second end adjacent to the heat exchanger.

10. (Currently amended) An air charging system for use with a snowmobile engine, the snowmobile engine being mounted for propelling a snowmobile over a snow/ice covered terrain, comprising:

a first heat exchanger for cooling an air charge, an efficiency of the first heat exchanger being enhanced by the first heat exchanger being so disposed such that the first heat exchanger cools the air charge by means of latent heat including at least the heat of fusion required to melt a mass of snow/ice that is in thermal communication with the first heat exchanger, the efficiency of the first heat exchanger being further enhanced by conduction, the first heat exchanger being formed of a thermally conductive material, the first heat exchanger thermally conductive material being mounted to a snowmobile thermally conductive structure such that heat is conducted from the first heat exchanger thermally conductive material to the snowmobile thermally conductive structure; and

a second heat exchanger operating in cooperation with the first heat exchanger to cool the air charge, the second heat exchanger including a liquid reservoir for holding a volume of liquid, the reservoir being in fluid communication with the second heat exchanger for convectively cooling the air charge in the second heat exchanger.

11. (Previously Presented) The air charging system of claim 10, including the first heat exchanger being in thermal communication with a mass of snow/ice communicated to the first heat exchanger from a snow/ice covered terrain.

12. (Previously presented) The air charging system of claim 11, including the efficiency of the first heat exchanger being further enhanced by the latent heat of vaporization of entrained water being in thermal communication with the first heat exchanger and being vaporized thereby.

13. (Cancel)

14. (Previously presented) The air charging system of claim 10, including the efficiency of the first heat exchanger being further enhanced by convective heat exchange by means of a volume of ram air being moved over the first heat exchanger.

15. (Canceled)

16. (Previously Presented) [The air charging system of claim 10] An air charging system for use with a snowmobile engine, the snowmobile engine being mounted for propelling a snowmobile over a snow/ice covered terrain, comprising:

a first heat exchanger for cooling an air charge, an efficiency of the first heat exchanger being enhanced by the first heat exchanger being so disposed such that the first heat exchanger cools the air charge by means of latent heat including at least the heat of fusion required to melt a mass of snow/ice that is in thermal communication with the first heat exchanger; and

a second heat exchanger operating in cooperation with the first heat exchanger to cool the air charge, the second heat exchanger including a liquid reservoir for holding a volume of liquid, the reservoir being in fluid communication with the second heat exchanger for convectively cooling the air charge in the second heat exchanger, ~~including~~ the second heat exchanger having a liquid reservoir, the liquid reservoir being in fluid communication with the snowmobile engine for delivery of a quantity of liquid thereto for mixing with a fuel/air charge responsive to a sensed condition of detonation in the snowmobile engine.

17. (Currently amended) A method of cooling an air charge in an air charging system, the air charging system being for use with a snowmobile engine, the snowmobile engine being mounted for propelling a snowmobile over a snow/ice covered terrain, comprising:

flowing a heated air charge through a first heat exchanger;

melting a mass of snow/ice that is in thermal communication with the first heat exchanger;

operating a second heat exchanger in cooperation with the first heat exchanger to cool the air charge, including the second heat exchanger having a liquid reservoir for holding a volume of liquid, fluidly communicating the reservoir with the second heat exchanger for convectively cooling the air charge in the second heat exchanger; and

enhancing the efficiency of the first heat exchanger by conduction, forming the first heat exchanger of a thermally conductive material, thermally conductively mounting first heat exchanger thermally conductive material to a snowmobile thermally conductive structure, and conducting heat from the first heat exchanger thermally conductive material to the snowmobile thermally conductive structure; and further ~~thereby~~ enhancing an efficiency of the first heat exchanger by so disposing the first heat exchanger such that the first heat exchanger cools the air charge by means of latent heat including at least the heat of fusion of the melting mass of snow/ice.

18. (Previously Presented) The method of claim 17, including disposing the first heat exchanger in thermal communication with a mass of snow/ice communicated to the first heat exchanger from a snow/ice covered terrain.

19. (Previously presented) The method of claim 18, including vaporizing entrained water being in thermal communication with the first heat exchanger and thereby further enhancing the efficiency of the first heat exchanger by the latent heat of vaporization.

20. (Canceled)

21. (Previously Presented) The method of claim 17, including enhancing the efficiency of the first heat exchanger by convective heat exchange by moving a volume of ram air over the first heat exchanger.

22. (Canceled)

23. (Currently amended) [The method of claim 17, including] A method of cooling an air charge in an air charging system, the air charging system being for use with a snowmobile engine, the snowmobile engine being mounted for propelling a snowmobile over a snow/ice covered terrain, comprising:

flowing a heated air charge through a first heat exchanger;

melting a mass of snow/ice that is in thermal communication with the first heat exchanger;

operating a second heat exchanger in cooperation with the first heat exchanger to cool the air charge, including the second heat exchanger having a liquid reservoir for holding a volume of liquid, fluidly communicating the reservoir with the second

heat exchanger for convectively cooling the air charge in the second heat exchanger;

enhancing an efficiency of the first heat exchanger by so disposing the first heat exchanger such that the first heat exchanger cools the air charge by means of latent heat including at least the heat of fusion of the melting mass of snow/ice; and

fluid communicating the liquid reservoir of the second heat exchanger with the snowmobile engine and delivering of a quantity of liquid thereto for mixing with a fuel/air charge responsive to a sensed condition of detonation in the snowmobile engine.